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| EXAMINER | |
|---|---|
| PHU, SANH D | |
| **ART UNIT** | **PAPER NUMBER** |
| 2618 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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| 3 MONTHS | 02/08/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/719,208 | STEPHENS ET AL. | |
| | Examiner | Art Unit | |
| | Sanh D. Phu | 2618 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on *02 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *35 and 36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 1/2/07. Accordingly, claims 1, 2, 5-23 and 25-34 are currently pending; claims 3, 4 and 24 are canceled and claims 35 and 36 are withdrawn from consideration.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 recites the limitation "The method of claim 24". It is unclear which method claim 25 refers to since claim 24 was canceled by the Amendment filed on 1/2/07.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 5-15, 17-23, 25, 26, 28-32 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Hartman (7,016,296).

-Regarding to claim 1, Hartman discloses a method comprising:

procedure (200) (see figure 2) of transmitting a registration request (see (802) of figure 8)), (considered here equivalent with the limitation "medium reservation request message"), from a first station (200) to initiate training and to request a medium reservation (see col. 12, lines 22-42);

procedure (104) (see figure 2) of receiving by a second station (104) a medium reservation reply message granting a medium reservation request and providing training feedback (see (804, 808) of figure 8, col. 11, line 9 to col. 12, line 53); and

procedure (200) of selecting at least one data transmission parameter based on the received training feedback (see (916) of figure 9, col. 13, lines 1-8);

wherein the registration request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the registration request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53); (the content of the registration request message considered here equivalent with the limitation "training information"; and the registration request message, as a

digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the registration request message includes training information comprising a training sequence").

-Regarding to claim 2, Hartman discloses procedure (200) of transmitting data according to the at least one data transmission parameter (see col. 13, lines 1-8).

-Regarding to claim 5, Hartman discloses that the training feedback comprises information feedback specifying at least one data transmission parameter to be used for transmitting data (see (808) of figure 8).

-Regarding to claim 6, Hartman discloses that the feedback describing at least one measured transmission condition comprises at least one from the group comprising: a measured signal to noise ratio; a presence of errors or not in received training information or other information; a number of errors detected; a bit error rate or packet error rate; and a measured signal strength (see col. 7, lines 65 to col. 8, line to col. 8, line 20).

-Regarding to claim 7, Hartman discloses that the measured transmission condition is measured on a per subcarrier basis (see col. 10, lines 45-50).

-Regarding to claim 8, Hartman discloses that the measured transmission condition is measured based on the transmission via an antenna (206) (see figure 2), or in another word, on a per antenna (206) basis.

-Regarding to claim 9, Hartman discloses that the selecting at least one data transmission parameter comprises selecting a data transmission parameter from the group including: a data rate; a modulation scheme; a coding rate; use and/or type of interleaving; and transmission power (see (916) of figure 9).

-Regarding to claim 10, Hartman that the selected data transmission parameter is selected on a per subcarrier basis (see col. 11, lines 25-58).

-Regarding to claim 11, Hartman discloses procedure (200) (see figure 2) of obtaining access to a wireless transmission medium which inherently must be prior to the transmitting a medium reservation request message (see col. 5, lines 11-27).

-Regarding to claim 12, Hartman discloses that the obtaining access comprises performing obtaining access to a wireless medium using an access

technique (considered here equivalent with the limitation "polling access technique" or "contention based access technique") (see col. 5, lines 11-27).

-Regarding to claim 13, Hartman discloses procedure (104) of receiving the medium reservation request message; measuring a transmission condition in response to the medium reservation request message; and transmitting the medium reservation reply message to grant the medium reservation request, the medium reservation reply message including training feedback (see figure 8).

-Regarding to claim 14, Hartman that the measuring comprises measuring a transmission condition based on training information provided in the medium reservation request message (see col. 5, lines 29-61, col. 12, lines 27-35).

-Regarding to claim 15, Hartman discloses that the medium reservation reply message includes training feedback, the training feedback comprising feedback specifying at least one data transmission parameter to be used for transmitting data (see (808) of figure 8).

-Regarding to claim 17, in Hartman, the registration request can be considered here as a request-to-send type message which initiates a receiving station (104) (see figure 1) to measure a transmission condition for training.

-Regarding to claim 18, in Hartman, the request-to-send type message registration request can be considered here as a request-to-send type message which includes training information (see col. 5, lines 29-61, col. 12, lines 25-35).

-Regarding to claim 19, Hartman discloses that the medium reservation reply message can be considered here as a clear-to-send type message that also includes training feedback (see (904, 912) of figure 9).

-Regarding to claim 20, Hartman discloses procedure of sending data via the reserved medium according to the at least one selected transmission parameter (see (916) of figure 9).

-Regarding to claim 21, as similarly applied to claims 1, 2, 5-15, 17-20, set forth above and herein incorporated, Hartman discloses a method comprising:

procedure (104) (see figure 2) of receiving at a first station a medium reservation request message sent from a second station (200) (see (802) of figure 8);

procedure (104) of measuring a transmission condition in response to the medium reservation request message (see (804) of figure 8); and

procedure (104) of transmitting a medium reservation reply message from the first station to the second station, the medium reservation reply message granting the medium reservation request from the second station and including training feedback to be used by the second station to select or adapt at least one transmission parameter (see (808) of figure 8);

wherein the medium reservation request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the medium reservation request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation

configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53); (the content of the medium reservation request message considered here equivalent with the limitation "training information"; and the medium reservation request message, as a digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the medium reservation request message includes training information comprising a training sequence").

-Regarding to claim 22, Hartman discloses that the second station selects at least one data transmission parameter based on the received training feedback (see (916) of figure 9).

-Claim 23 is rejected with similar reasons set forth for claim 5.

-Regarding to claim 26, as similarly applied to claims 1, 2, 5-15, 17-20, set forth above and herein incorporated, Hartman discloses an apparatus (200) (see figure 2) comprising a processor (208) and a wireless transceiver (212, 214, 216), the apparatus adapted to send a medium reservation request message via a wireless link to a first station (104) (see figure 2) to initiate training and to request a medium reservation, the apparatus further adapted to

select at least one data transmission parameter based upon training feedback included within a medium reservation reply message received from the first station (see also (916, of figure 9));

wherein the medium reservation request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the medium reservation request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53); (the content of the medium reservation request message considered here equivalent with the limitation "training information"; and the medium reservation request message, as a digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the medium reservation request message includes training information comprising a training sequence").

-Regarding to claim 28, Hartman discloses that the apparatus is adapted to send a medium reservation request message via a wireless link to a first station to initiate training and to request a medium reservation, the medium reservation request message including training information to allow the first station to measure a transmission condition (see figure 8).

-Regarding to claim 29, Hartman discloses that the wireless system further comprises a memory (210) coupled to the processor, and an antenna (206) coupled to the wireless transceiver (see figure 2).

-Regarding to claim 30, as similarly applied to claims 12, 5-15, 17-20, set forth above and herein incorporated, Hartman discloses an apparatus (104) (see figure 2) comprising a processor (250) and a wireless transceiver (254, 256, 258), the apparatus adapted to receive a medium reservation request message via a wireless link from a first station, the apparatus further adapted to measure a transmission condition and send a medium reservation reply message to the first station, the medium reservation reply message granting the requested medium reservation and including training feedback to allow the first station to select at least one transmission parameter (see also figure 8);

wherein the medium reservation request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the medium reservation request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53); (the content of the medium reservation request message considered here equivalent with the limitation "training information"; and the medium reservation request message, as a digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the medium reservation request message includes training information comprising a training sequence").

-Regarding to claim 31, Hartman discloses that the medium reservation request message includes training information, the apparatus adapted to

measure a transmission condition based on the received training information (see figure 8).

-Regarding to claim 32, similarly applied to claims 1-15, 17-20, set forth above and herein incorporated, Hartman discloses a method of transmitting information between first and second wireless stations (104, 200) (see figure 2), the method comprising: a training phase (see figure 8), the training phase including sending a medium reservation request message from the first station (200) to the second station (104) to request a medium reservation, measuring a transmission condition in response to the medium reservation request message, and sending a medium reservation reply message from the second station to the first station to grant the requested medium reservation and providing training feedback, the second station selecting at least one data transmission parameter based upon the received training feedback; and a data phase (see (916) of figure 9), where at least one data message is sent from the first station to the second station via the reserved medium according to the selected data transmission parameter;

wherein the medium reservation request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the medium reservation request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53); (the content of the medium reservation request message considered here equivalent with the limitation "training information"; and the medium reservation request message, as a digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the medium reservation request message includes training information comprising a training sequence").

-Claim 34 is rejected with similar reasons set forth for claims 17 and 19.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 16, 27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman.

-Regarding to claim 16, Hartman does not disclose whether at least one of the medium reservation request message and the medium reservation reply message include a duration field to specify a duration of the requested medium reservation.

However, in Hartman, the first station (200) and second station (104) provide transmission to each other via allocated timeslots wherein the first station send requests to the second station, and upon the requests, the second station allocates timeslots for transmissions of the first station, determines whether the timeslots currently allocated to the first station are still acceptable

for future transmissions, and informs the first station the timeslot allocation (see col. 14, lines 4-16, col. 15, lines 1-58).

Communicating information on request for number of times slots specifying for a duration of a medium reservation from a request site to an allocator site, and communicating information on an allocation of number of times slots specifying for a duration of a medium reservation from an allocator site to a request site are within skills of a person in the art and well-known in the art and the examiner takes Official Notice.

Since Hartman does not teach how the first station know about the timeslot allocation in detail, it would have been obvious for a person skilled in the art, within his skills, to implement Hartman in such a way that the medium reservation request message could include information about timeslots currently allocated to the first station, or a requested number of timeslots, specifying for a duration of the requested medium reservation so that based upon receiving said information, the second station would determine said timeslots is acceptable; and in reply, the medium reservation reply message would include a duration field to specify a duration of the requested medium

reservation in order to inform the first station about said duration being newly allocated for the subsequent signal transmission of the first station. With such the implementation, the second station would be well-informed about request on the duration for the requested medium reservation and the first station would be well-informed about the newly-assigned duration for the requested medium reservation, in response to the request.

-Claims 27 and 33 are rejected with similar reasons set forth for claim 16.

*Response to Arguments*

8. Applicant's arguments filed on 1/2/07 have been fully considered but they are not persuasive.

The applicant mainly argues that Hartman does not teach the limitation "wherein said medium reservation request message includes training information comprising a training sequence".

The examiner respectfully disagrees. In light of specification of the instant application, generally, a signal can be called a training signal containing training information if when the signal is received at a receiver end, the signal's

content is used to measure transmission characteristic(s) (e.g., bit error rate, SNR, etc.), and a digital training signal is a training sequence that based upon the content of the training signal received at a receiver end, a characteristic of its transmission, e.g., a bit error rate can be measured (see pages 11 and 12 of the specification of the instant application).

Hartman teaches a registration request message (see (802) of figure 8)), (considered here equivalent with the limitation "medium reservation request message"), wherein the registration request message is a sequence of digital signal comprising a plurality of separate streams, each stream modulated with a separate carrier or tone (see col. 5, lines 29-45, col. 10, line 45 to col. 11, line 7, col. 12, lines 22-35); and the content of the registration request message is used for measuring the characteristics (SINR, BER, CER) of the its transmission and determining whether they satisfy minimum requirements so that new assignments on encoding scheme and symbol constellation configuration can be made (see col. 10, lines 45 to col. 11, line 15, col. 12, lines 18-53). In comparisons, the content of the registration request message can be considered here equivalent with the limitation "training information"; and the

registration request message, as a digital sequence, considered here equivalent with a "training sequence", or namely, it can be said that the registration request message includes training information comprising a training sequence, as claimed.

*Conclusion*

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D. Phu whose telephone number is (571)272-7857. The examiner can normally be reached on M-Th from 7:00-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sanh D. Phu
Examiner
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SP

2/5/07

SANH D. PHU
PATENT EXAMINER